SHOW/EXPLAIN ALL WORK FOR ANY CREDIT

(2 pts) Determine whether the equation defines y as a function of x.

1) $y^2 + x = 7$ 1) _____

(2 pts) Find the domain of the function.
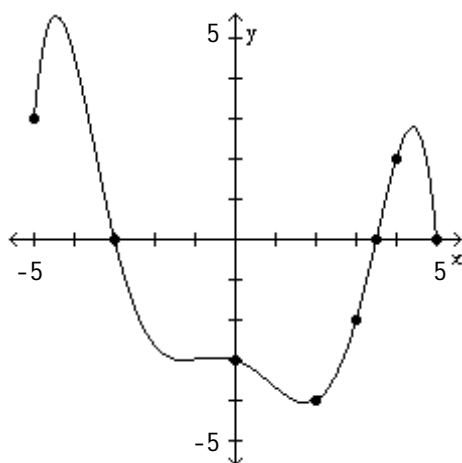
2) $f(x) = \dfrac{x}{x^2 + 5}$ 2) _____

(3 pts) The graph of a function f is given. Use the graph to answer the question.

3) For what numbers x is f(x) > 0?   3) _____

(8 pts) Solve the equation.

4) $|x^2 - 4x - 4| = 8$ 4) _____

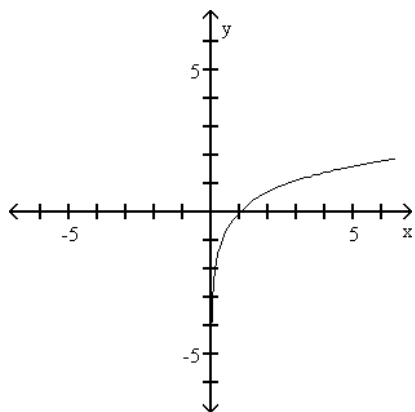(4 pts) For the given functions f and g, find the requested function and state its domain.

5) $f(x) = \sqrt{x}$; $g(x) = 6x - 1$ 5) _____

Find $\dfrac{f}{g}$.

(8 pts) Determine whether the graph is that of a function. If it is, use the graph to find its domain and range, the intercepts, if any, and any symmetry with respect to the x-axis, the y-axis, or the origin.
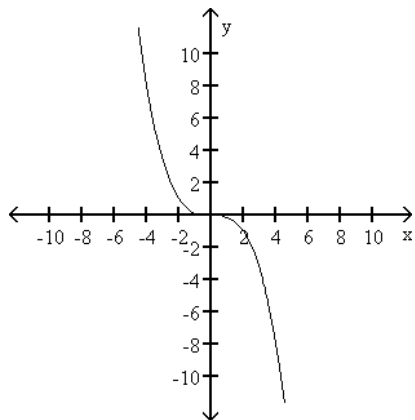
6)

6) _____

(2 pts) The graph of a function is given. Decide whether it is even, odd, or neither.

7)

7) _____

(4 pts) Determine algebraically whether the function is even, odd, or neither.

8) $f(x) = \dfrac{x}{x^2 - 4}$

8) _____

(8 pts) Write the equation. ## Do not solve!!

9) Alan is building a garden shaped like a rectangle with a semicircle attached to one short side. If he has 40 feet of fencing to go around it, express the area A of the garden as a function of the width or length (<u>your choice</u>) of the rectangle.

9) _____

(4 pts) Solve the problem.

10) Assume it costs 25 cents to mail a letter weighing one ounce or less, and then 20 cents for each additional ounce or fraction of an ounce. Let L(x) be the cost of mailing a letter weighing x ounces. Graph y = L(x).
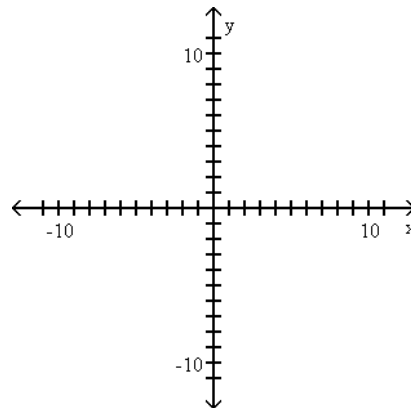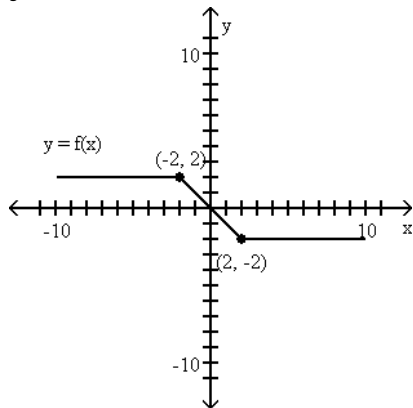
10) _____
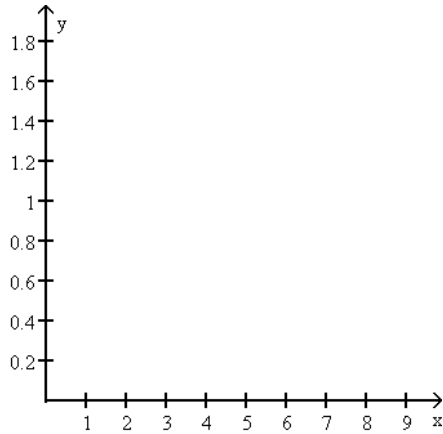
(6 pts) Use the accompanying graph of y = f(x) to sketch the graph of the indicated equation.
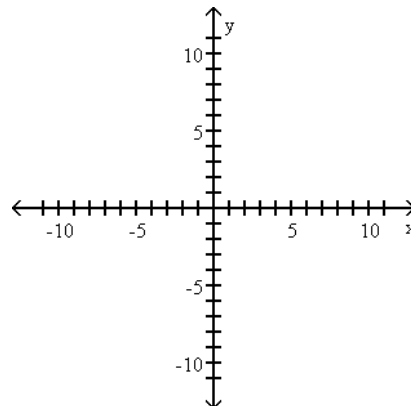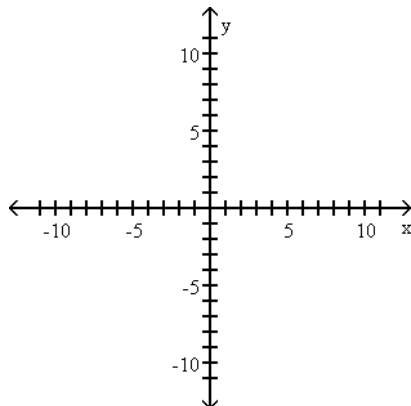
11) y = -2f(x-1)

11) _____

(8 pts) Graph the function f by starting with the graph of y = x^2 and using transformations (shifting, compressing, stretching, and/or reflection).

12) f(x) = -7x^2 + 14x - 2

12) _____

3

(8 pts) Solve the problem.

13) You have 108 feet of fencing to enclose a rectangular plot that borders on a river. If you do not fence the side along the river, find the length and width of the plot that will maximize the area.

13) _____

(8 pts) Solve the inequality.

14) $12(x^2 - 1) > 7x$

14) _____